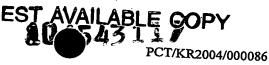
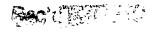
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# PATENT COOPERATION TREATY





REC'D 27 JUN 2005

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY WIPO

(Chapter II of the Patent Cooperation Treaty)

|   | (PCT Artcle 36 and Rule 70)  |  |  |  |
|---|--|--|--|--|
|   | FURTHER ACTION   | See Form PCT/IPEA/416  |  |  |
| International application No. International | tional filing date(day/month/year)   | Priority date (day/month/year)   |  |  |
| PCT/KR2004/00086 19 JA International Patent Classification (IPC) or nation  | NUARY 2004 (19 01 2004)  | 23 JANUARY 2003 (23.01.2003)   |  |  |
| PC7 C07D 493/22  Applicant  |  |  |  |  |
| JUNG, Man-Kil   | ·  |  |  |  |
| Administrative Instructions sheets which supersede earl beyond the disclosure in the Supplemental Box. b. (sent to the International Bureau o containing a sequence listing and/o   | sheets, including this covered to a sheets, including this covered ternational Bureau) a total of laims and/or drawings which have be tifications authorized by this Authority (continuational application as filed, as a statel of (indicated). | sheet.  3sheets, as follows: been amended and are the basis for this report rity (see Rule 70.16 and Section 607 of the considers contain an amendment that goes is indicated in item 4 of Box No. I and the other of electronic carrier(s)) |  |  |
| 4. This report contains indications relating to the   |  | and a missi delitoris).  |  |  |
| Box No. II Priority   |  | •  |  |  |
| Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |  |  |  |  |
| Lack of unity of invent   | tion ·   |  |  |  |
|   |  | velty, inventive step or industrial applicability;   |  |  |
| Box No. VI Certain documents cite   | ed   |  |  |  |
|   | and the international application  |  |  |  |
| Box No. VIII Certain observations on  | the international application  |  |  |  |
| te of submission of the demand  | Date of completion of  | of this report   |  |  |
| 20 AUGUST 2004 (20.08.20  | 200  | 005 (20.05.2005)   |  |  |
| me and mailing address of the IPEA/KR   | Authorized officer   |  |  |  |
| Korean Intellectual Property Office<br>920 Dunsan-dong, Seo-gu, Daejeon 302<br>Republic of Korea  |  | FIITI  |  |  |
| esimile No. 82-42-472-7140  | ZDD, sac score   | g (111/H/21)   |  |  |

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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International aplication No.

| Dow No. 1 D. C. C.   | PCT/KR2004/000086   |
|--|---|
| Box No. I Basis of the report  |   |
| <ol> <li>With regard to the language, this report is based on the international application in the language indicated under this item.</li> <li>This report is based on translations from the original language into the following language of a translation of the language of the la</li></ol> | nguage in which it was filed, unless  |
| and language of a translation furnished for the purposes of  | inguage <u>English</u>  |
| international search (under Rules 12.3 and 23.1(b))  |   |
| publication of the international application (under Rule 12.4)   | <u>.</u>  |
| international preliminary examination (under Rules 55.2 and/or 55.3)   | ,   |
| <ol> <li>With regard to the elements of the international application, this report is based on (replace to the receiving Office in response to an invitation under Article 14 are referred to in this reannexed to this report):</li> <li>the international application as originally filed/furnished</li> </ol>   | ment sheets which have been furnished<br>cort as "originally filed" and are not |
| the description:   |   |
| pages  |   |
| pages*   | as originally filed/furnished   |
| pages* received by this Authority on received by this Authority on   |   |
| the claims:  | · · · · · · · · · · · · · · · · · · ·   |
| pages  |   |
| nages*   | as originally filed/furnished   |
| pages* 29 - 31 as amended (together  | With any statment) under Autola 10  |
| pages*   | 10/05/2005  |
| received by this Authority on  |   |
| the drawings:  |   |
| pages  | 00 oni-in-11. Ct. 1/0   |
|  | as originally filed/furnished   |
| pages*   |   |
| the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequ  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos.  | ience Listing.  |
| the drawings, sheets   |   |
| the sequence listing (specify):  |   |
| any table(s) related to segment living   |   |
| any table(s) related to sequence listing (specify):  |   |
| This report has been established as if (some of) the amendments annexed to this report a made, since they have been considered to go beyond the disclosure as filed, as indicated (Rule 70.2(c)).  the description, pages the claims, Nos.   | in the Supplemental Box   |
|  |   |
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| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | •   |
| any table(s) related to sequence listing (specify):  |   |
|  |   |
| item 4 applies, some or all of those sheets may be marked "superseded."  |   |

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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International aplication No. PCT/KR2004/000086

| ROX NO. A | Reasoned statement under A diel 25(0)   |
|-----------|---|
|           | citations and an industrial with regard to novelty, inventive step or industrial  |
|           | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
|           | g = 11 butchicht  |
|           |   |

| 1  | Statement                      |                  |                       |  |
|----|--------------------------------|------------------|-----------------------|--|
|    | Novelty (N)                    | Claims<br>Claims | 1 - 3, 5, 6 YES       |  |
|    | Inventive step (IS)            | Claims<br>Claims | NO 1 - 3, 5, 6 YES    |  |
|    | Industrial applicability (IA)  | Claims<br>Claims | 1 - 3, 5, 6 NO YES NO |  |
| 2. | Citations and explanations (R) | ıle 70 7\        | NO                    |  |

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: OGNYANOV et. al., 'Synthesis and antimalarial activity of novel C12-ethers of 11hydroxydihydroartemisinin` in: Dokldi na Bulgarskata Akademiya na Naukite (CODEN: DBANEH. ISSN: 0861-1459), 1993, 46(11), pp. 45-48

The present invention relates to a new deoxoartemisinin dimer and a new deoxoartemisinin trimer which have excellent anticancer activity. D1 discloses novel C12-ethers of 11hydroxydihydroartemisinin, which have good in-vitro antimalarial activity.

Although D1 teaches the C12-ethers of 11-hydroxydihydroartemisinin which have good in-vitro antimalarial activity, D1 does not disclose the features of the subject matter of claims 1-3, 5 and 6, which meet the criteria set forth in PCT Article 33(2), (3) and (4). The new deoxoartemisinindimer and a new deoxoartemisinin trimer which have excellent anticancer activity are not anticipated by any of the references on record.

Thus, the invention described in the present application is considered to be novel, inventive and